

SEQUENCE LISTING



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SATO, KAZUHIRO

<120> ORGANIC NITROGEN-CONTAINING COMPOSITION AND FERTILIZER COMPRISING THE
SAME

<130> 219843US0

<140> 10/077,745

<141> 2002-02-20

<150> JF 2001-044137

<151> 2001-02-20

<160> 8

<170> PatentIn version 3.1

<210> 1

<211> 935

<212> PFT

<213> Enterobacter agglomerans

<400> 1

Met Gln Asn Ser Ala Met Lys Pro Trp Leu Asp Ser Ser Trp Leu Ala
1 5 10 15

Gly Ala Asn Gln Ser Tyr Ile Glu Gln Leu Tyr Glu Asp Phe Leu Thr
 20 25 30

Asp Pro Asp Ser Val Asp Ala Val Trp Arg Ser Met Phe Gln Gln Leu
 35 40 45

Pro Gly Thr Gly Val Lys Pro Glu Gln Phe His Ser Ala Thr Arg Glu
 50 55 60

Tyr Phe Arg Arg Leu Ala Lys Asp Ala Ser Arg Tyr Thr Ser Ser Val
 65 70 75 80

Thr Asp Pro Ala Thr Asn Ser Lys Gln Val Lys Val Leu Gln Leu Ile
 85 90 95

Asn Ala Phe Arg Phe Arg Gly His Gln Glu Ala Asn Leu Asp Pro Leu
 100 105 110

Gly Leu Trp Lys Gln Asp Arg Val Ala Asp Leu Asp Pro Ala Phe His
 115 120 125

Asp Leu Thr Asp Ala Asp Phe Gln Glu Ser Phe Asn Val Gly Ser Phe
 130 135 140

Ala Ile Gly Lys Glu Thr Met Lys Leu Ala Asp Leu Phe Asp Ala Leu
 145 150 155 160

Lys Gln Thr Tyr Cys Gly Ser Ile Gly Ala Glu Tyr Met His Ile Asn
 165 170 175

Asn Thr Glu Glu Lys Arg Trp Ile Gln Gln Arg Ile Glu Ser Gly Ala
 180 185 190

Ser Gln Thr Ser Phe Ser Gly Glu Glu Lys Lys Gly Phe Leu Lys Glu
 195 200 205

Leu Thr Ala Ala Glu Gly Leu Glu Lys Tyr Leu Gly Ala Lys Phe Pro
 210 215 220

Gly Ala Lys Arg Phe Ser Leu Glu Gly Gly Asp Ala Leu Val Pro Met
225 230 235 240

Leu Arg Glu Met Ile Arg His Ala Gly Lys Ser Gly Thr Arg Glu Val
245 250 255

Val Leu Gly Met Ala His Arg Gly Arg Leu Asn Val Leu Ile Asn Val
260 265 270

Leu Gly Lys Lys Pro Gln Asp Leu Phe Asp Glu Phe Ser Gly Lys His
275 280 285

Lys Glu His Leu Gly Thr Gly Asp Val Lys Tyr His Met Gly Phe Ser
290 295 300

Ser Asp Ile Glu Thr Glu Gly Gly Leu Val His Leu Ala Leu Ala Phe
305 310 315 320

Asn Pro Ser His Leu Glu Ile Val Ser Pro Val Val Met Gly Ser Val
325 330 335

Arg Ala Arg Leu Asp Arg Leu Ala Glu Pro Val Ser Asn Lys Val Leu
340 345 350

Pro Ile Thr Ile His Gly Asp Ala Ala Val Ile Gly Gln Gly Val Val
355 360 365

Gln Glu Thr Leu Asn Met Ser Gln Ala Arg Gly Tyr Glu Val Gly Gly
370 375 380

Thr Val Arg Ile Val Ile Asn Asn Gln Val Gly Phe Thr Thr Ser Asn
385 390 395 400

Pro Lys Asp Ala Arg Ser Thr Pro Tyr Cys Thr Asp Ile Gly Lys Met
405 410 415

Val Leu Ala Pro Ile Phe His Val Asn Ala Asp Asp Pro Glu Ala Val
420 425 430

Ala Phe Val Thr Arg Leu Ala Leu Asp Tyr Arg Asn Thr Phe Lys Arg
435 440 445

Asp Val Phe Ile Asp Leu Val Cys Tyr Arg Arg His Gly His Asn Glu
450 455 460

Ala Asp Glu Pro Ser Ala Thr Gln Pro Leu Met Tyr Gln Lys Ile Lys
465 470 475 480

Lys His Pro Thr Pro Arg Lys Ile Tyr Ala Asp Arg Leu Glu Gly Glu
485 490 495

Gly Val Ala Ser Gln Glu Asp Ala Thr Glu Met Val Asn Leu Tyr Arg
500 505 510

Asp Ala Leu Asp Ala Gly Glu Cys Val Val Pro Glu Trp Arg Pro Met
515 520 525

Ser Leu His Ser Phe Thr Trp Ser Pro Tyr Leu Asn His Glu Trp Asp
530 535 540

Glu Pro Tyr Pro Ala Gln Val Asp Met Lys Arg Leu Lys Glu Leu Ala
545 550 555 560

Leu Arg Ile Ser Gln Val Pro Glu Gln Ile Glu Val Gln Ser Arg Val
565 570 575

Ala Lys Ile Tyr Asn Asp Arg Lys Leu Met Ala Glu Gly Glu Lys Ala
580 585 590

Phe Asp Trp Gly Gly Ala Glu Asn Leu Ala Tyr Ala Thr Leu Val Asp
595 600 605

Glu Gly Ile Pro Val Arg Leu Ser Gly Glu Asp Ser Gly Arg Gly Thr
610 615 620

Phe Phe His Arg His Ala Val Val His Asn Gln Ala Asn Gly Ser Thr
625 630 635 640

Tyr Thr Pro Leu His His Ile His Asn Ser Gln Gly Glu Phe Lys Val
645 650 655

Trp Asp Ser Val Leu Ser Glu Glu Ala Val Leu Ala Phe Glu Tyr Gly
660 665 670

Tyr Ala Thr Ala Glu Pro Arg Val Leu Thr Ile Trp Glu Ala Gln Phe
675 680 685

Gly Asp Phe Ala Asn Gly Ala Gln Val Val Ile Asp Gln Phe Ile Ser
690 695 700

Ser Gly Glu Gln Lys Trp Gly Arg Met Cys Gly Leu Val Met Leu Leu
705 710 715 720

Pro His Gly Tyr Glu Gly Gln Gly Pro Glu His Ser Ser Ala Arg Leu
725 730 735

2.5'

Glu Arg Tyr Leu Gln Leu Cys Ala Glu Gln Asn Met Gln Val Cys Val
740 745 750

Pro Ser Thr Pro Ala Gln Val Tyr His Met Leu Arg Arg Gln Ala Leu
755 760 765

Arg Gly Met Arg Arg Pro Leu Val Val Met Ser Pro Lys Ser Leu Leu
770 775 780

Arg His Pro Leu Ala Ile Ser Ser Leu Asp Glu Leu Ala Asn Gly Ser
785 790 795 800

Phe Gln Pro Ala Ile Gly Glu Ile Asp Asp Leu Asp Pro Gln Gly Val
805 810 815

Lys Arg Val Val Leu Cys Ser Gly Lys Val Tyr Tyr Asp Leu Leu Glu
820 825 830

Gln Arg Arg Lys Asp Glu Lys Thr Asp Val Ala Ile Val Arg Ile Glu
835 840 845

Gln Leu Tyr Pro Phe Pro His Gln Ala Val Gln Glu Ala Leu Lys Ala
 850 855 860

Tyr Ser His Val Gln Asp Phe Val Trp Cys Gln Glu Glu Pro Leu Asn
 865 870 875 880

Gln Gly Ala Trp Tyr Cys Ser Gln His His Phe Arg Asp Val Val Pro
 885 890 895

Phe Gly Ala Thr Leu Arg Tyr Ala Gly Arg Pro Ala Ser Ala Ser Pro
 900 905 910

Ala Val Gly Tyr Met Ser Val His Gln Gln Gln Gln Gln Asp Leu Val
 915 920 925

Asn Asp Ala Leu Asn Val Asn
 930 935

<210> 2

<211> 407

<212> PRT

<213> Enterobacter agglomerans

<400> 2

Met Ser Ser Val Asp Ile Leu Val Pro Asp Leu Pro Glu Ser Val Ala
 1 5 10 15

Asp Ala Thr Val Ala Thr Trp His Lys Lys Pro Gly Asp Ala Val Ser
 20 25 30

Arg Asp Glu Val Ile Val Glu Ile Glu Thr Asp Lys Val Val Leu Glu
 35 40 45

Val Pro Ala Ser Ala Asp Gly Val Leu Glu Ala Val Leu Glu Asp Glu
 50 55 60

Gly Ala Thr Val Thr Ser Arg Gln Ile Leu Gly Arg Leu Lys Glu Gly
65 70 75 80

Asn Ser Ala Gly Lys Glu Ser Ser Ala Lys Ala Glu Ser Asn Asp Thr
85 90 95

Thr Pro Ala Gln Arg Gln Thr Ala Ser Leu Glu Glu Glu Ser Ser Asp
100 105 110

Ala Leu Ser Pro Ala Ile Arg Arg Leu Ile Ala Glu His Asn Leu Asp
115 120 125

Ala Ala Gln Ile Lys Gly Thr Gly Val Gly Gly Arg Leu Thr Arg Glu
130 135 140

Asp Val Glu Lys His Leu Ala Asn Lys Pro Gln Ala Glu Lys Ala Ala
145 150 155 160

Ala Pro Ala Ala Gly Ala Ala Thr Ala Gln Gln Pro Val Ala Asn Arg
165 170 175

Ser Glu Lys Arg Val Pro Met Thr Arg Leu Arg Lys Arg Val Ala Glu
180 185 190

Arg Leu Leu Glu Ala Lys Asn Ser Thr Ala Met Leu Thr Thr Phe Asn
195 200 205

Glu Ile Asn Met Lys Pro Ile Met Asp Leu Arg Lys Gln Tyr Gly Asp
210 215 220

Ala Phe Glu Lys Arg His Gly Val Arg Leu Gly Phe Met Ser Phe Tyr
225 230 235 240

Ile Lys Ala Val Val Glu Ala Leu Lys Arg Tyr Pro Glu Val Asn Ala
245 250 255

Ser Ile Asp Gly Glu Asp Val Val Tyr His Asn Tyr Phe Asp Val Ser
260 265 270

Ile Ala Val Ser Thr Pro Arg Gly Leu Val Thr Pro Val Leu Arg Asp
275 280 285

Val Asp Ala Leu Ser Met Ala Asp Ile Glu Lys Lys Ile Lys Glu Leu
290 295 300

Ala Val Lys Gly Arg Asp Gly Lys Leu Thr Val Asp Asp Leu Thr Gly
305 310 315 320

Gly Asn Phe Thr Ile Thr Asn Gly Gly Val Phe Gly Ser Leu Met Ser
325 330 335

Thr Pro Ile Ile Asn Pro Pro Gln Ser Ala Ile Leu Gly Met His Ala
340 345 350

Ile Lys Asp Arg Pro Met Ala Val Asn Gly Gln Val Val Ile Leu Pro
355 360 365

Met Met Tyr Leu Ala Leu Ser Tyr Asp His Arg Leu Ile Asp Gly Arg
370 375 380

Glu Ser Val Gly Tyr Leu Val Ala Val Lys Glu Met Leu Glu Asp Pro
385 390 395 400

Ala Arg Leu Leu Leu Asp Val
405

<210> 3

<211> 41

<212> PRT

<213> Enterobacter agglomerans

<400> 3

Met Asn Leu His Glu Tyr Gln Ala Lys Gln Leu Phe Ala Arg Tyr Gly
1 5 10 15

Met Pro Ala Pro Thr Gly Tyr Ala Cys Thr Thr Pro Arg Glu Ala Glu
 20 25 30

Glu Ala Ala Ser Lys Ile Gly Ala Gly
 35 40

<210> 4

<211> 39

<212> PRT

<213> Enterobacter agglomerans

<400> 4

Ala Phe Ser Val Phe Arg Cys His Ser Ile Met Asn Cys Val Ser Val
 1 5 10 15

Cys Pro Lys Gly Leu Asn Pro Thr Arg Ala Ile Gly His Ile Lys Ser
 20 25 30

Met Leu Leu Gln Arg Ser Ala
 35

<210> 5

<211> 933

<212> PRT

<213> Escherichia coli

<400> 5

Met Gln Asn Ser Ala Leu Lys Ala Trp Leu Asp Ser Ser Tyr Leu Ser
 1 5 10 15

Gly Ala Asn Gln Ser Trp Ile Glu Gln Leu Tyr Glu Asp Phe Leu Thr
 20 25 30

Asp Pro Asp Ser Val Asp Ala Asn Trp Arg Ser Thr Phe Gln Gln Leu
35 40 45

Pro Gly Thr Gly Val Lys Pro Asp Gln Phe His Ser Gln Thr Arg Glu
50 55 60

Tyr Phe Arg Arg Leu Ala Lys Asp Ala Ser Arg Tyr Ser Ser Thr Ile
65 70 75 80

Ser Asp Pro Asp Thr Asn Val Lys Gln Val Lys Val Leu Gln Leu Ile
85 90 95

Asn Ala Tyr Arg Phe Arg Gly His Gln His Ala Asn Leu Asp Pro Leu
100 105 110

Gly Leu Trp Gln Gln Asp Lys Val Ala Asp Leu Asp Pro Ser Phe His
115 120 125

Asp Leu Thr Glu Ala Asp Phe Gln Glu Thr Phe Asn Val Gly Ser Phe
130 135 140

Ala Ser Gly Lys Glu Thr Met Lys Leu Gly Glu Leu Leu Glu Ala Leu
145 150 155 160

Lys Gln Thr Tyr Cys Gly Pro Ile Gly Ala Glu Tyr Met His Ile Thr
165 170 175

Ser Thr Glu Glu Lys Arg Trp Ile Gln Gln Arg Ile Glu Ser Gly Arg
180 185 190

Ala Thr Phe Asn Ser Glu Glu Lys Lys Arg Phe Leu Ser Glu Leu Thr
195 200 205

Ala Ala Glu Gly Leu Glu Arg Tyr Leu Gly Ala Lys Phe Pro Gly Ala
210 215 220

Lys Arg Phe Ser Leu Glu Gly Gly Asp Ala Leu Ile Pro Met Leu Lys
225 230 235 240

Glu Met Ile Arg His Ala Gly Asn Ser Gly Thr Arg Glu Val Val Leu
245 250 255

Gly Met Ala His Arg Gly Arg Leu Asn Val Leu Val Asn Val Leu Gly
260 265 270

Lys Lys Pro Gln Asp Leu Phe Asp Glu Phe Ala Gly Lys His Lys Glu
275 280 285

His Leu Gly Thr Gly Asp Val Lys Tyr His Met Gly Phe Ser Ser Asp
290 295 300

Phe Gln Thr Asp Gly Gly Leu Val His Leu Ala Leu Ala Phe Asn Pro
305 310 315 320

Ser His Leu Glu Ile Val Ser Pro Val Val Ile Gly Ser Val Arg Ala
325 330 335

Arg Leu Asp Arg Leu Asp Glu Pro Ser Ser Asn Lys Val Leu Pro Ile
340 345 350

Thr Ile His Gly Asp Ala Ala Val Thr Gly Gln Gly Val Val Gln Glu
355 360 365

Thr Leu Asn Met Ser Lys Ala Arg Gly Tyr Glu Val Gly Gly Thr Val
370 375 380

Arg Ile Val Ile Asn Asn Gln Val Gly Phe Thr Thr Ser Asn Pro Leu
385 390 400

Asp Ala Arg Ser Thr Pro Tyr Cys Thr Asp Ile Gly Lys Met Val Gln
405 410 415

Ala Pro Ile Phe His Val Asn Ala Asp Asp Pro Glu Ala Val Ala Phe
420 425 430

Val Thr Arg Leu Ala Leu Asp Phe Arg Asn Thr Phe Lys Arg Asp Val
435 440 445

Phe Ile Asp Leu Val Ser Tyr Arg Arg His Gly His Asn Glu Ala Asp
450 455 460

Glu Pro Ser Ala Thr Gln Pro Leu Met Tyr Gln Lys Ile Lys Lys His
465 470 475 480

Pro Thr Pro Arg Lys Ile Tyr Ala Asp Lys Leu Glu Gln Glu Lys Val
485 490 495

Ala Thr Leu Glu Asp Ala Thr Glu Met Val Asn Leu Tyr Arg Asp Ala
500 505 510

Leu Asp Ala Gly Asp Cys Val Val Ala Glu Trp Arg Pro Met Asn Met
515 520 525

His Ser Phe Thr Trp Ser Pro Tyr Leu Asn His Glu Trp Asp Glu Glu
530 535 540

Tyr Pro Asn Lys Val Glu Met Lys Arg Leu Gln Glu Leu Ala Lys Arg
545 550 555 560

Ile Ser Thr Val Pro Glu Ala Val Glu Met Gln Ser Arg Val Ala Lys
565 570 575

Ile Tyr Gly Asp Arg Gln Ala Met Ala Ala Gly Glu Lys Leu Phe Asp
580 585 590

Trp Gly Gly Ala Glu Asn Leu Ala Tyr Ala Thr Leu Val Asp Glu Gly
595 600 605

Ile Pro Val Arg Leu Ser Gly Glu Asp Ser Gly Arg Gly Thr Phe Phe
610 615 620

His Arg His Ala Val Ile His Asn Gln Ser Asn Gly Ser Thr Tyr Thr
625 630 635 640

Pro Leu Gln His Ile His Asn Gly Gln Gly Ala Phe Arg Val Trp Asp
645 650 655

Ser Val Leu Ser Glu Glu Ala Val Leu Ala Phe Glu Tyr Gly Tyr Ala
660 665 670

Thr Ala Glu Pro Arg Thr Leu Thr Ile Trp Glu Ala Gln Phe Gly Asp
675 680 685

Phe Ala Asn Gly Ala Gln Val Val Ile Asp Gln Phe Ile Ser Ser Gly
690 695 700

Glu Gln Lys Trp Gly Arg Met Cys Gly Leu Val Met Leu Leu Pro His
705 710 715 720

Gly Tyr Glu Gly Gln Gly Pro Glu His Ser Ser Ala Arg Leu Glu Arg
725 730 735

Tyr Leu Gln Leu Cys Ala Glu Gln Asn Met Gln Val Cys Val Pro Ser
740 745 750

65

Thr Pro Ala Gln Val Tyr His Met Leu Arg Arg Gln Ala Leu Arg Gly
755 760 765

Met Arg Arg Pro Leu Val Val Met Ser Pro Lys Ser Leu Leu Arg His
770 775 780

Pro Leu Ala Val Ser Ser Leu Glu Glu Leu Ala Asn Gly Thr Phe Leu
785 790 795 800

Pro Ala Ile Gly Glu Ile Asp Glu Leu Asp Pro Lys Gly Val Lys Arg
805 810 815

Val Val Met Cys Ser Gly Lys Val Tyr Tyr Asp Leu Leu Glu Gln Arg
820 825 830

Arg Lys Asn Asn Gln His Asp Val Ala Ile Val Arg Ile Glu Gln Leu
835 840 845

Tyr Pro Phe Pro His Lys Ala Met Gln Glu Val Leu Gln Gln Phe Ala
850 855 860

His Val Lys Asp Phe Val Trp Cys Gln Glu Glu Pro Leu Asn Gln Gly
 865 870 875 880

Ala Trp Tyr Cys Ser Gln His His Phe Arg Glu Val Ile Pro Phe Gly
 885 890 895

Ala Ser Leu Arg Tyr Ala Gly Arg Pro Ala Ser Ala Ser Pro Ala Val
 900 905 910

Gly Tyr Met Ser Val His Gln Lys Gln Gln Gln Asp Leu Val Asn Asp
 915 920 925

Ala Leu Asn Val Glu
 930

<210> 6

<211> 405

<212> PRT

<213> Escherichia coli

<400> 6

Met Ser Ser Val Asp Ile Leu Val Pro Asp Leu Pro Glu Ser Val Ala
 1 5 10 15

Asp Ala Thr Val Ala Thr Trp His Lys Lys Pro Gly Asp Ala Val Val
 20 25 30

Arg Asp Glu Val Leu Val Glu Ile Glu Thr Asp Lys Val Val Leu Glu
 35 40 45

Val Pro Ala Ser Ala Asp Gly Ile Leu Asp Ala Val Leu Glu Asp Glu
 50 55 60

Gly Thr Thr Val Thr Ser Arg Gln Ile Leu Gly Arg Leu Arg Glu Gly
 65 70 75 80

Asn Ser Ala Gly Lys Glu Thr Ser Ala Lys Ser Glu Glu Lys Ala Ser
85 90 95

Thr Pro Ala Gln Arg Gln Gln Ala Ser Leu Glu Glu Gln Asn Asn Asp
100 105 110

Ala Leu Ser Pro Ala Ile Arg Arg Leu Leu Ala Glu His Asn Leu Asp
115 120 125

Ala Ser Ala Ile Lys Gly Thr Gly Val Gly Gly Arg Leu Thr Arg Glu
130 135 140

Asp Val Glu Lys His Leu Ala Lys Ala Pro Ala Lys Glu Ser Ala Pro
145 150 155 160

Ala Ala Ala Ala Pro Ala Ala Gln Pro Ala Leu Ala Ala Arg Ser Glu
165 170 175

Lys Arg Val Pro Met Thr Arg Leu Arg Lys Arg Val Ala Glu Arg Leu
180 185 190

Leu Glu Ala Lys Asn Ser Thr Ala Met Leu Thr Thr Phe Asn Glu Val
195 200 205

Asn Met Lys Pro Ile Met Asp Leu Arg Lys Gln Tyr Gly Glu Ala Phe
210 215 220

Glu Lys Arg His Gly Ile Arg Leu Gly Phe Met Ser Phe Tyr Val Lys
225 230 235 240

Ala Val Val Glu Ala Leu Lys Arg Tyr Pro Glu Val Asn Ala Ser Ile
245 250 255

Asp Gly Asp Asp Val Val Tyr His Asn Tyr Phe Asp Val Ser Met Ala
260 265 270

Val Ser Thr Pro Arg Gly Leu Val Thr Pro Val Leu Arg Asp Val Asp
275 280 285

Thr Leu Gly Met Ala Asp Ile Glu Lys Lys Ile Lys Glu Leu Ala Val
290 295 300

Lys Gly Arg Asp Gly Lys Leu Thr Val Glu Asp Leu Thr Gly Gly Asn
305 310 315 320

Phe Thr Ile Thr Asn Gly Gly Val Phe Gly Ser Leu Met Ser Thr Pro
325 330 335

Ile Ile Asn Pro Pro Gln Ser Ala Ile Leu Gly Met His Ala Ile Lys
340 345 350

Asp Arg Pro Met Ala Val Asn Gly Gln Val Glu Ile Leu Pro Met Met
355 360 365

Tyr Leu Ala Leu Ser Tyr Asp His Arg Leu Ile Asp Gly Arg Glu Ser
370 375 380

Val Gly Phe Leu Val Thr Ile Lys Glu Leu Leu Glu Asp Pro Thr Arg
385 390 395 400

Leu Leu Leu Asp Val
405

<210> 7

<211> 60

<212> PRT

<213> Escherichia coli

<400> 7

Met Asn Leu His Glu Tyr Gln Ala Lys Gln Leu Phe Ala Arg Tyr Gly
1 5 10 15

Leu Pro Ala Pro Val Gly Tyr Ala Cys Thr Thr Pro Arg Glu Ala Glu
20 25 30

Glu Ala Ala Ser Lys Ile Gly Ala Gly Pro Trp Val Val Lys Cys Gln
35 40 45

Val His Ala Gly Gly Arg Gly Lys Ala Gly Gly Val
50 55 60

<210> 8

<211> 58

<212> PRT

<213> Escherichia coli

<400> 8

Phe Leu Ile Asp Ser Arg Asp Thr Glu Thr Asp Ser Arg Leu Asp Gly
1 5 10 15

Leu Ser Asp Ala Phe Ser Val Phe Arg Cys His Ser Ile Met Asn Cys
20 25 30

Val Ser Val Cys Pro Lys Gly Leu Asn Pro Thr Arg Ala Ile Gly His
35 40 45

Ile Lys Ser Met Leu Leu Gln Arg Asn Ala
50 55